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ABSTRACT

The purpose of this study was to establish specific guidelines for the initial screening and identification of children with learning disabilities in the state of Washington in the elementary grades. Approximately 6,000 children in the state of Washington were screened for learning disabilities using two methods, teacher identification and standardized group testing measures. Next, all students were referred to a qualified clinical team which ascertained which children did, in fact, qualify as learning disabled under Washington State guidelines. Some of the results indicated that teachers consistently over-identified students as learning disabled at all grade levels and also failed to identify some children who were learning disabled. The clinical team verified the classification of all students as learning disabled that the computer had identified, based solely on cutoff levels on standardized tests as specified by the state guidelines. Based on the multiple regression analysis, teachers at the kindergarten level more effectively identified the learning disabled population than at any other grade level. (MKM)

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An Estimate of the Incidence of Learning Disabled Students in the State of Washington and the Effectiveness of Teachers in Identifying That Population

Research Report
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In the early part of the 1960's a new field of exceptionality was identified within special education. Although this new field was greeted with the formal establishment of several organizations; i.e., the Association of Children with Learning Disabilities and the Division of Children with Learning Disabilities, Council for Exceptional Children, the field of learning disabilities was neither new or without noted contributors (1), (3). These organizations of parents and educators represented the existing concern and were essential in securing the subsequent legislation for the establishment of grants to states and various task forces. These specific acts were merely the culmination of centuries of concern for learning disabilities but were instrumental in advancing the knowledge of this field. Initially, medical professionals (e.g., Gall, 1802; Bouillaud, 1820; Broca, 1860; Head, 1926) (11) were the most noted contributors to the study of learning disabilities. Today, it is the educator: reading, special education, learning disability, early childhood, communication disorder specialist; the psychologist: the psychometrist, clinician, counselor; the physician: pediatrician, optometrist, neurologist; and local and state school administrator, the parent, and the community agency who expresses concern and contributes to the field of learning disabilities.

In the state of Washington, the people supported their legislature in passing legislation that would insure that all students would receive an appropriate public education. This "Education For All"

legislation most directly affected the "special" or "exceptional" student; i.e., the visually handicapped, the deaf, the physically handicapped, the severely retarded, are easily identified, the learning disabled student was not clearly defined or identified.

The problem of identifying the learning disabled population was obscured by the numerous descriptors referred to in the literature: motor development, auditory perception, visual perception, language disorder, and written or spoken language (1), (4), (9). A task force was formed within the state to develop specific guidelines defining the criteria for learning disability program placement.

Generally, the guidelines for defining learning disability is a deficit in reading, a deficit in visual-motor perception or auditory discrimination, an IQ of 75 or above, and no other handicapping conditions. Specific criteria are listed within the definition for each grade level.

A parallel enigma is establishing the funding levels for the category of learning disabilities. The available literature suggests that 2 to 15 percent of the total school population has a severe learning disability or severe reading disability (2), (10), (6). Initially, the state of Washington funded learning disability programs at .5 percent of the total school population. In the 1975-76 school year, the funding level was set at 1.0 percent. This elevated level of funding represents a perceived need for extended services for the learning disabled population.

Purpose and Objectives

The purpose of this study was to establish specific guidelines for the initial screening and identification of children with learning disabilities in the state of Washington, within the grade levels of kindergarten through grade six.

Specifically, two methods of screening presently available were assessed: teacher identification and standardized group testing. Both methods were assessed in terms of their ability to match the classification decisions made by a team of qualified clinical judges.

The primary objectives of this study were:

1. To establish the relationship between teacher identification of potential learning disabled children and the judgements of a qualified clinical team based on the standardized tests.
2. To establish the relationship between standardized group screening measures, utilizing a combination of group tests, and the judgements of a qualified clinical team.
3. To establish the formulas for the best weighted combination of screening procedures and instruments for matching the judgements of a qualified clinical team.
4. To establish the relative costs of each procedure or combination of procedures specified in the preceeding objective statements.

5. To establish estimates of the general performance levels of children in the state of Washington on a variety of academic tasks, broken down in terms of grade level and classification as to identification by teacher and state guidelines.
6. To establish the incidence of learning disability pupils in the state of Washington by geographic location.

Procedures

Approximately 6,000 children in the state of Washington were screened for learning disabilities using two methods: teacher identification and standardized group testing measures. All students in the sample were then referred to a qualified clinical team which ascertained which children, did, in fact, qualify as learning disabled under Washington State guidelines. Analyses were then conducted to determine the extent to which teachers and clinicians identified the same students. Finally, regression analyses were conducted to determine which combination of assessment procedures, tests, or subtests would yield the most reliable and effective initial screening results for the identification of children with potential learning disabilities, as judged by a qualified clinical team.

Population

The target population for this study included all pupils currently enrolled in regular kindergarten through sixth grade public school programs in the state of Washington during the 1974-75 school year (NB except that pupils in resource rooms were included).

Sample

The sample was drawn to fill a 7 x 3 x 2 matrix having 42 cells. The cells are identified by geographic area (urban, suburban, rural); by sex and by grade level ranging from kindergarten through, and including sixth grade. (See Table 1.) Each cell should contain at least 150 students to be relatively assured that the true proportion of students with learning disabilities are accurately identified (8), (5). For instance, if the students in each of the cells were randomly selected, there would be a 95 percent level of confidence that the true proportion of learning disabled students identified would be within ±2.5 percent per cell sampled if it can be estimated that the incidence of learning disabled is as high as 10 percent in any given cell.

Table 1

Sampling Matrix

Grade Placement Level	Population Density					
	Urban		Suburban		Rural	
	Male	Female	Male	Female	Male	Female
Kindergarten	150	150	150	150	150	150
First Grade	150	150	150	150	150	150
Second Grade	150	150	150	150	150	150
Third Grade	150	150	150	150	150	150
Fourth Grade	150	150	150	150	150	150
Fifth Grade	150	150	150	150	150	150
Sixth Grade	150	150	150	150	150	150

Limitations and Capabilities

It was determined that it was not feasible to draw a sample by random selection procedures for a study of this size with a limited budget and constrained timeline, therefore, no real, accurate statement can be made regarding the confidence or the error tolerance levels of the sampling procedures employed in this study. The sample was confined to those districts, schools, classrooms representing the three geographic areas of the state of Washington who volunteered to become a part of the study.

A major capability of this study is that it has provided information as to the best means of identifying the child in kindergarten through grade six with a verified learning disability (as defined by Washington State Rules and Regulations). It has also provided preliminary information for the decision making necessary for funding the category of learning disabilities.

In addition to the above-mentioned capability, this study has provided valuable information which will become the basis for future studies that will provide more accurate information about learning disabled students.

Data Collection Procedures

In order to complete the objectives of this study, all students included in the sample were given standardized group testing on their achievement in reading, language, and math, as well as a measure of their academic ability (grades 2 through 6) and visual perception.

The specific standardized tests administered at each grade level are shown in Table 2. From the standardized group testing, the students having achievement deficiencies were identified (identification screen no. 1); i.e., they had a deficit in reading, meeting the criteria contained in Table 3. Students whose ability levels fell below IQ 75 were then excluded from this study (idenfication screen no. 2). Students with a deficit in visual perception (identification screen no. 3) were identified. Those students identified as having other handicaps (identification screen no. 4) were also excluded from the study as they were eligible for other special programs. (See Table 3.)

Teachers of the students being screened with the standardized group measures were asked to identify those students they felt had a learning disability. Criteria for learning disabilities was shown to each teacher prior to the teacher's identification of the student as learning disabled.

Verification Team

Three members from the fields of psychology, reading, and learning disabilities comprised the verification team. The three judges were responsible for looking at each student's standardized test scores and verifying that the student did or did not meet the state guidelines for the classification of "learning disabled." If a discrepancy, apparent error, or missing information existed in the student's scores, the student was assigned to the category of "questionable learning disabled."

Table 2

Standardized Group Tests

Grade Placement Level	Achievement Test		Ability Test	Perception Test
	Reading, Language	Math		
Kindergarten	TOBE	TOBE		Bender-Gestalt
First Grade	Clymer-Barret	TOBE		Bender-Gestalt
Second Grade	CTBS	TOBE	SFTAA	Bender-Gestalt
Third Grade	CTBS	TOBE	SFTAA	Bender-Gestalt
Fourth Grade	CTBS	TOBE	SFTAA	Bender-Gestalt
Fifth Grade	CTBS	TOBE	SFTAA	Bender-Gestalt
Sixth Grade	CTBS	TOBE	SFTAA	Bender-Gestalt

TOBE - Tests of Basic Experience
PPVT - Peabody Picture Vocabulary Test
CTBS - Comprehensive Test of Basic Skills
SFTAA - Short Form Test of Academic Aptitude

Table 3

Criteria Levels for Learning
Disability Identification Screens

Grade Placement Level	Identification Screens			
	No. 1 Achievement Level in Reading	No. 2 IQ Level	No. 3 Visual-Motor Perceptual Level	No. 4 *Indication of Other Handicaps?
Kindergarten	≤ Age 4	> 75	Not Specified	No
First Grade	≤ Kindergarten	> 75	≤ Kindergarten	No
Second Grade	≤ First Grade	> 75	≤ First Grade	No
Third Grade	≤ Second Grade	> 75	≤ First Grade	No
Fourth Grade	≤ Second Grade	> 75	≤ Second Grade	No
Fifth Grade	≤ Second Grade	> 75	≤ Second Grade	No
Sixth Grade	≤ Third Grade	> 75	≤ Third Grade	No

* i.e., blind, deaf, physically handicapped?

Methods of Analysis

Reduction and analysis of the data included means and standard deviations of each of the measures used in this study by geographic area, by grade level, and by classification of learning disabled (LD) and not learning disabled (NLD). Crossbreak analysis between standardized tests and teacher selection was utilized. Multivariate correlational techniques were also utilized with the data to identify regression formulae that specified the appropriate weightings for the different data sources used in the identification of students with learning disabilities.

Results

The results of this study in reference to the stated objectives were as follows:

1. Teachers consistently over-identified students as learning disabled at all grade levels. The percent of agreement between the two methods of identification ranged from a high of 18.68 percent at kindergarten to a low of 3.33 percent at grade six. More importantly, even though teachers identified a large number of children who were not learning disabled, they also failed to identify some children who were learning disabled, as judged in accord with the state guidelines. (See Table 4.)
2. The clinical team, utilizing the combination of group screening measures, verified the classification of all students as LD that the computer had identified as LD based solely on cut-off levels on standardized tests as specified by the state guidelines. In addition, the clinical team listed some students with missing test data as questionable LD.
3. Based on the multiple regression analysis, teachers at the kindergarten level more effectively identified the learning disabled population than at any other grade level. (See Table 5 for regression coefficient weights.)

Table 4

Percentage of Agreement Between
State Guidelines Identification
and Teacher Identification

Grade	*SGI %	SGI and **TI %	TI %	Not TI and Not SGI %	% of Identified Population by SGI	% of Identified Population by TI	% of Agreement Between These Two Methods
K	1.29	2.74	10.63	85.35	8.79	72.53	18.68
1	.31	1.41	17.11	81.16	1.67	90.83	7.50
2	.77	.77	16.92	81.53	4.19	91.62	4.19
3	2.93	1.95	13.66	81.46	15.79	73.68	10.53
4	1.23	1.38	13.48	83.92	7.62	83.81	8.57
5	.66	.99	14.47	83.88	4.08	89.80	6.12
6	.20	.39	11.13	88.28	1.67	95.00	3.33

*SGI - State Guideline Identification
**TI - Teacher Identification
NB - Numbers to compute percentages for "State Guideline Identification" were derived by programming the computer with the state guideline criteria. Students with missing scores were excluded.

Table 5

Multiple Stepwise Regression
Variables and Coefficients

Grade Level	R	R^2	N	Number of Variables Entered	Regression Coefficient Weights of Variables Entered and Intercept		
K	0.43	.18	582	3	TOBE Reading Teacher Judgement Bender-Gestalt	-0.036 0.145 0.007	+0.131
1	0.25	.06	598	1	Clymer Barret	-0.020	+0.138
2	0.20	.04	856	1	CTBSS Reading	0.018	+0.035
3	0.48	.23	569	2	Bender-Gestalt CTBS Reading	0.074 0.010	+0.212
4	0.31	.10	612	1	CTBS Reading	-0.007	+0.357
5	0.23	.05	573	2	Bender-Gestalt CTBS Reading	0.021 0.002	+0.071
6	0.28	.06	492	2	Bender-Gestalt Teacher Judgement	0.023 0.097	+-0.032

4. Although standardized group tests and their computer and/or hand scoring costs are high, it would appear that if teachers are to perform the first screen based on their judgement, they would over-identify the learning disabled population at such high proportions that the costs of a second level screen on an individual basis would constitute an even higher testing cost.
5. Students identified as LD scored significantly lower in most areas - reading, language, math, IQ, Bender - across grade levels kindergarten through sixth grade than the NLD population.
6. The incidence of unserved learning disability students in the state of Washington appears to range from a low of .50 at sixth grade to a high at third grade (See Table 6). The varying range of the level of learning disability is caused by the varying criteria across grade levels and the relative difficulty levels of the instruments.

Discussion

The implications of the rate at which teachers tend to identify students as LD are paramount. It is not to be expected that teachers should easily understand and apply the technical, ofentimes elusive state definition of learning disability. The identification of LD students by teachers encompasses 18 percent of the population in grade one. As a screen, this is not an efficient method when that 18 percent

of the grade one population must receive time, costly in-depth testing, of diagnosis. It is also important to note that 2.93 percent (Table 4) of the LD population was missed by teachers at grade 3.

Table 6

Geographic Display of Number and Percent of Learning Disabilities in the State of Washington

Grade Level	RURAL			SUBURBAN			URBAN			Totals	
	N	Number Identified As LD	% LD	N	Number Identified As LD	% LD	N	Number Identified As LD	% LD	N	%
*K	271	10	3.69	269	5	1.86	212	11	5.19	752	3.45
*1	254	2	0.79	279	2	0.72	252	7	2.78	785	1.40
2	570	2	0.35	307	2	0.65	173	10	5.78	1050	1.33
3	189	3	1.59	274	12	4.38	262	27	10.31	725	5.79
4	219	0	0.00	250	3	1.20	294	17	5.78	763	2.62
5	153	0	0.00	271	0	0.00	273	8	2.93	697	1.15
6	68	0	0.00	266	0	0.00	265	3	1.13	599	0.50

* Kindergarten and grade one include only two of the screens; reading and visual perception.

NB - Verification team identification of students.

The 1975-76 funding level for learning disabilities is established at 1.0 percent of the population in the state of Washington. Assuming that many LD students in grades 4, 5, and 6 were already identified, placed in LD programs and therefore, not included in this study, the evidence strongly supports an increase in the level of support. The data presented in Table 6 also indicates a higher incidence of learning disabilities in urban areas. Presently, the funding procedure in the state of Washington does not allow for a higher incidence of learning disabilities by geographic area.

The results from this investigation, minimally, suggests further study to determine more accurately or to replicate the incidence reported here; or, to increase the level of funding across all grade levels with a higher ratio extended to urban areas.

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